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Young, H.; van Knippenberg, A.; Ellemers, N.; de Vries, N.

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The effects of group membership and social context on information organization

HEATHER YOUNG and AD VAN KNIPPENBERG
University of Nijmegen, The Netherlands

NAOMI ELLEMERS
Free University, Amsterdam, The Netherlands

and

NANNE DE VRIES
University of Amsterdam, The Netherlands

Abstract

Self-categorization theory posits that the perception of group members is flexible and determined by the comparative social context as well as by group membership. Subjects read about either four ingroup or outgroup target persons in the context of four additional stimulus persons who were members of either the same group as the target persons (intragroup context) or the other group (intergroup context). Individualized and attribute-wise information organization was assessed on the basis of information clustering in free recall. As predicted, differential processing of ingroup information occurred as a function of the salient social context; in an intragroup context, ingroup information was organized significantly more by person than in an intergroup context. Conversely, ingroup information tended to be clustered more by attribute in an intergroup than in an intragroup context. Clustering of outgroup information was not sensitive to changes in the social context. The results indicate that the perception of group members may be based on more than group membership alone. ©1997 John Wiley & Sons, Ltd.

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Addressee for correspondence: Heather Young, Department of Social Psychology, University of Nijmegen, P.O. Box 9104, 6500 HE Nijmegen, The Netherlands, tel: +31 (24) 361-2684, e-mail: young@psych.kun.nl.

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INTRODUCTION

In recent social psychological research, the organization of social information in memory has received considerable attention (e.g. Hamilton, Driscoll, & Worth, 1989; Hastie & Kumar, 1979; Ostrom, Carpenter, Sedikides, & Li, 1993; Park, Judd, & Ryan, 1991; Van Knippenberg, van Twuyver, & Pepels, 1994). In the present paper we will examine some of the existing literature on the memorial organization of person information and subsequently present a study which builds upon and extends this empirical and theoretical direction by examining the effects, as indicated by information clustering, of group membership and comparative social context on individuation and categorization.

The manipulation of group membership has played a central role in many studies investigating information processing. Generally, ingroup information tends to be processed in a rather individuated and heterogeneous fashion. Conversely, outgroup information is often found to be processed and perceived in a more homogeneous or categorical fashion. Several explanations have been proffered in order to explain this differential processing of ingroup and outgroup information: we have more ingroup exemplars readily available (Linville, Fischer, & Salovey, 1989; Park & Judd, 1990), we have more ingroup subtypes at our disposal (Brewer, 1988; Park & Rothbart, 1982), and we are more familiar with ingroup members than with our outgroup members (e.g. Judd, Ryan, & Park, 1991; Ostrom *et al.*, 1993). However, none seems to have consistently explained all available empirical results successfully.

When evaluating the body of literature on in- and outgroup information processing, it is important to note that the measures used vary widely from study to study. Measures commonly used include the organization of ingroup and outgroup information in free recall (Ostrom *et al.*, 1993; Wilder, 1990), the perception of central tendency and variability (Doosje, Spears, Haslam, Koomen, & Oakes, 1995; Haslam, Oakes, Turner, & McGarty, 1995; Linville *et al.*, 1989; Park, Ryan, and Judd, 1992), reading latencies (Vonk & van Knippenberg, 1995), the degree of group identification (Ellemers, van Knippenberg, de Vries, & Wilke, 1988; Ellemers, Doosje, van Knippenberg, & Wilke, 1992) and person evaluation (Lemmers & van Knippenberg, 1994). Some researchers have suggested that different measures are not related and hence, cannot be compared (Park *et al.*, 1992). On the other hand, however, others suggest that various measures may lead to converging findings, indicating similar underlying processes (Messick & Mackie, 1989; Park & Rothbart, 1982; Wilder, 1990; Worth, 1988).

In the present study we are particularly interested in the organization of social information in memory, the assessment of which can be accomplished in several ways. One method with which to tap into the memorial organization of person information is by measuring the degree of clustering of information in free recall (e.g. Ostrom *et al.*, 1993; Wilder, 1990). The underlying assumption of clustering is that the order in which information about individuals and attributes is reproduced during recall informs us about the way this information is stored in and accessed from memory. When a subject reproduces consecutively all available information about a specific person, and then continues with another person, this is taken as an indication of a cognitive representation in terms of separate individuals (person clustering). Clustering in terms of attributes (for

instance, first all the different hobbies are recalled, then all the different sports, etc.) presumably denotes a tendency to process and retrieve information for a group of people as a whole.

Ostrom *et al.* (1993) demonstrated differential clustering of ingroup and outgroup information using the Adjusted Ratio of Clustering (ARC) index (Roenker, Thompson, and Brown, 1971). In particular, they found that ingroup information was clustered by person while outgroup information was clustered in a more categorical fashion, namely by attribute category. They argue that this is the case because ingroups are naturally individuated, while outgroups are categorized as a result of differential familiarity. Consequently, the organization of in- and outgroup information is static due to the fixed and unchangeable nature of familiarity over situations[1].

While Ostrom *et al.* (1993) provide convincing empirical data, their argument seems to be somewhat in contrast with findings reported in other studies. Several researchers report finding perceptual flexibility of group members in various paradigms. Specifically, there is evidence that the ingroup may be differentially perceived as a result of fluctuations in the comparative context in which information is communicated (Doosje *et al.*, 1995; Haslam *et al.*, 1995; Lemmers & van Knippenberg, 1994; Vonk & van Knippenberg, 1995).

Self-categorization theory (Ellemers & van Knippenberg, 1997; Turner, 1985; Turner, Oakes, Haslam, & McGarty, 1994) posits that different levels of comparison are triggered by cues in the environment and in the self. Comparisons between the ingroup and the outgroup or between the self and other individuals occur as a result of fit between these cues and cognitively available categorizations. According to the theory, an intragroup context, in which only members of the ingroup are present, gives rise to an interpersonal level of social comparison. As a result, group members will be individuated, as this is the most informative type of social comparison in this context. Conversely, in an intergroup context (e.g. when one or more comparison outgroups are present in addition to the ingroup) perceivers are most likely to use group level comparisons in order to distinguish their own group from the outgroup. According to this line of argumentation, a situation in which an outgroup is present is more likely to lead to a categorical perception of both the ingroup and the outgroup. Consequently, while for ingroup targets the level of categorization (personal or categorical) depends on the psychological presence of an outgroup, information processing of outgroup targets is invariably on the level of the category as a whole (instead of in terms of individual group members) due to the fact that the very judgment of outgroup targets *implies* psychological outgroup presence. In other words, even when, in terms of the stimulus configuration, only outgroup members are perceived (an outgroup *intra*group context) the implicit comparison between observer (ingroup member) and target (outgroup member) evokes an intergroup categorical level of comparison.

[1]Wilder (1990) also found that, all else being equal, ingroups were clustered more by person than outgroups. However, when individuating information was provided, both outgroups and ingroups were clustered equally by person. Possibly, the individuating information led to increased familiarity with the out-group members. More importantly, Wilder's results imply that, while familiarity may play a role in the organization of descriptive information, this organization is not fixed and rigid as a function of group membership.

To illustrate, consider the following example: several psychologists alone in a room (an intragroup situation) are unlikely to see themselves in terms of the group 'psychologists' as this does not lead to informative social comparisons in this situation. Instead, they can be expected to differentiate between themselves using other, more informative dimensions such as individual characteristics.

If a group of lawyers now enters the room, the level of comparison should shift from interindividual to intergroup, as a direct result of the presence of a now salient outgroup (cf. Doise, Deschamps, & Meyer, 1978). In this situation, our psychologists should see the lawyers in terms of their group membership (categorization). Moreover, due to the shift in the level of comparison, the way the ingroup views itself also shifts. The psychologists should no longer see themselves as individuals, but rather in terms of the category; a group which is as separate and as distinct as possible from the outgroup.

As mentioned earlier, whenever the outgroup is present, an intergroup context becomes salient. If five psychologists participate in a discussion with five lawyers, it is assumed that an intergroup-level context would be salient. A so-called intragroup situation with the outgroup, however, is characterized by an implicit rather than explicit ingroup/outgroup comparison; if a psychologist observes five lawyers engaged in discussion, an intergroup level of comparison should be employed even though the ingroup/outgroup categorization is not explicitly salient. In this case, the stimulus persons will be perceived in terms of their respective group membership.

The present experiment investigates the effects of group membership and social context on information clustering in terms of person clustering and attribute clustering. Consistent with past research (Doosje *et al*., 1995; Haslam *et al*., 1995; Lemmers & van Knippenberg, 1994; Vonk & van Knippenberg, 1995) and self-categorization theory, we predict that ingroup information will be organized more by person (thus, more person clustering) in an intragroup context than in an intergroup context. Conversely, more categorical organization of ingroup information (attribute clustering) should occur in an intergroup context than in an intragroup context.

In regards to the organization of outgroup information, because of the perceiver's own ingroup affiliation, the mere presence of an outgroup should evoke an intergroup comparison whether the ingroup is explicitly salient or not. Thus, in both an intergroup context as well as a so-called outgroup intragroup context, the organization of outgroup information should occur by group, as indicated by relatively strong attribute clustering.

METHOD

Overview

Subjects in all conditions read the same descriptive information about eight stimulus persons whose group membership was manipulated using university major (either law or psychology). In order to manipulate Social Context, subjects were told that either all eight stimulus persons had the same university major (intragroup context)

or that four of the stimulus persons had the same major as the subject and that the other four had a different major (intergroup context). The between-subjects factors were Target Group (ingroup, outgroup), Social Context (intragroup, intergroup) and two Stimulus Presentation Order conditions to control for order effects. Information clustering served as the dependent variable. From the same free recall protocols, two measures of clustering were calculated: person and attribute clustering. Type of clustering (person versus attribute) was analysed as a within-subjects variable.

Subjects

Fifty-six university students (34 women and 22 men; 24 law students and 32 psychology students) participated in the study and were randomly assigned to one of the eight cells of the design. Subjects received DFL 5.00 (approximately $3.00) for participating.

Stimulus Material and Manipulations

The stimulus material described eight different people. All stimulus persons, identified by their first name, were described by four bits of information, one from each of four attribute categories. The attribute items (e.g. likes classical music, plays chess, works as a bartender) were pre-tested to ensure that the items describing the eight stimulus persons could be meaningfully clustered in terms of the persons described as well as in terms of the attribute categories to which they pertained (e.g. music, favourite games, part-time jobs). The pre-testing consisted of a pilot study ($N = 30$) in which subjects judged the stimulus materials for both within-person and within-attribute coherence. Two different stimulus sets resulted from the pre-testing, one for four of the stimulus persons (set A) and one for the other four stimulus persons (set B). Each set used different attribute categories (see Table 1).

In order to explain the manipulation of the factors Target Group and Social Context, it is useful to think of the eight stimulus persons as comprising four *target* stimulus persons and four *context* stimulus persons. The four stimulus persons described by set A constituted the target stimuli whose group membership was varied to manipulate Target Group. The four stimulus persons described by set B constituted the context stimuli whose group membership was varied to create either an intragroup or an intergroup context for the target stimulus persons in set A.

Our subjects were from two different undergraduate disciplines, psychology and law, constituting an additional between-subjects factor, Subject's Major. For psychology majors, the four target stimulus persons were presented as psychology majors in the *ingroup* target condition, and as law majors in the *outgroup* target condition. Conversely, for law majors, the four target stimulus persons were presented as law majors in the *ingroup* target conditions, and as psychology majors in the *outgroup* target condition.

Table 1. Stimulus sets A and B

Stimulus set A					Stimulus set B				
Name	Part-time job	Favourite reading material	Favourite music	Favourite game	Name	Birthplace	Societal interest	Favourite TV programme	Favourite sport
Joost/Christine	Bartender	Panorama	Top 40	Pool	Pieter/Mirjam	Leiden	Fraternity/ sorority	LA Law	Tennis
Frans/Mariette	Volunteer	Trouw	Folk music	Cryptic puzzles	Jan/Tineke	Amsterdam	Theatre club	Married with children	Soccer
Rob/Inge	Temp work	Volkskrant	Jazz	Cards	Michiel/Annette	Kampen	Church	Documentaries	Ice skating
Eric/Esther	Teaching assistant	NRC	Classical	Chess	Niels/Karin	Delft	University department committee	News programmes	Field hockey

The four context stimulus persons (described by set B) were used to manipulate social context. In the *intragroup* conditions, the four context stimulus persons were from the same group as the four target stimulus persons, that is, when the target persons were law students, the context persons were also law students, and when the target persons were psychology students, so were the context persons. In the *intergroup* context conditions, the group membership of target and context stimulus persons differed, thus law target stimuli were accompanied by psychology context stimuli and vice versa.

Table 2 depicts schematically how the target group and social context manipulations were achieved. Cells I and II show ingroup target stimuli in an intragroup and intergroup context, respectively. Cells III and IV show outgroup target stimuli in an intragroup and intergroup context, respectively.

It is important to note that, for the design described above, the recall data pertaining to the (target) stimulus persons described by set A were used to calculate the dependent variable (clustering scores). However, the free recall task was not limited to recall of information concerning set A stimuli, but it also incorporated recall of set B stimulus information. The latter allows us *to extract a second experimental design from our data*; if one treats set B as the target stimulus persons and set A as the context stimulus persons, a second experimental design emerges as depicted in Table 3.

Note that in this second design, schematically depicted in Table 3, the levels of the factor target group in cells II and IV are reversed compared to the first design. As one can see, on the basis of the recall data of set B one can draw up a design in which cells I and IV show ingroup target persons in an intragroup and an intergroup context, respectively. Conversely, cells II and III show outgroup target persons in an intragroup and an intergroup context, respectively.

Design implications for data analysis

Having gathered data from set A as well as set B from the same subjects enables us to analyse data in terms of two conceptually identical Target Group by Social Context between-subjects designs, although data from the *same cell* may be interpreted differently, depending on whether set A or set B is used as the target set. This feature of our study is highly exceptional; to our knowledge there is no precedent of such a

Table 2. Schematic overview of the design in which set A describes target group and set B manipulates social context

Design cell	Conditions (group/context)	Stimulus persons' group membership Set A (target group)	Set B (social context)
Cell I	Ingroup/intragroup	Ingroup	Ingroup
Cell II	Ingroup/intergroup	Ingroup	Outgroup
Cell III	Outgroup/intragroup	Outgroup	Outgroup
Cell IV	Outgroup/intergroup	Outgroup	Ingroup

Table 3. Schematic overview of the design in which set B describes target group and set A manipulates social context

Design cell	Conditions (group/context)	Stimulus persons' group membership Set B (target group)	Set A (social context)
Cell I	Ingroup/intragroup	Ingroup	Ingroup
Cell IV	Ingroup/intergroup	Ingroup	Outgroup
Cell III	Outgroup/intragroup	Outgroup	Outgroup
Cell II	Outgroup/intergroup	Outgroup	Ingroup

'dual design' in the experimental psychological literature. It seems, therefore, in order to expand somewhat on its implications for data analysis.

First, it is important to note that set A versus set B is not a within-subjects factor. In cell II, the target group is the ingroup in the first and the outgroup in the second design. In cell IV, the target group is the outgroup in the first and the ingroup in the second design. This factor level reversal (for the same subjects) precludes an analysis of set as within-subjects or repeated measures factor. Consequently, an alternative method of analysis must be employed.

One possible option is that each subject's data may be segmented into two parts, that is, data from set A and data from set B. These two data sets could then be analysed as separate experiments with the same subjects and, because they are conceptual replications of each other (i.e. only the stimulus materials differ), the results of these analyses could be subsequently subjected to a meta-analysis (cf. Mullen, 1989) in order to perform tests of our hypotheses across experiments. This method may be objectionable, however, based on the fact that the same subjects are used in both replications.

Alternatively, the two data sets could be inserted into one single ANOVA-design with set A versus set B as a between-subjects factor. Similar to the employment of a meta-analysis, however, one might object to this method of data analysis because it would look as if we had artificially inflated the error degrees of freedom (and hence, the power of the test) by using each subject twice.

Finally, the data may be analysed according to the hypotheses. Recall that we predict that the clustering of ingroup information will be sensitive to changes in the social context. Specifically, we predict that ingroup information will be clustered by person more in an intragroup condition than in an intergroup condition. Conversely, we expect more attribute clustering of ingroup information in the intergroup condition than in the intragroup condition. Alternatively, we predict that outgroup information will be clustered by attribute regardless of the salient social context. Consequently, we may test these predictions directly by analysing the cells in which ingroup information is presented separately from the cells in which outgroup information is presented.

Generally speaking, all three analyses would be methodologically appropriate, and indeed, preliminary tests show that all three methods yield similar patterns of results. For the sake of simplicity, however, we have chosen to report the results of the analyses for the ingroup and outgroup conditions separately.

Procedure

The experiment was conducted on Apple Macintosh computers. After short instructions about the use of the computer, subjects were asked to indicate their gender and major.

Subjects were subsequently told that they were participating in an experiment about the way in which people form first impressions of others. Subjects read that they would receive information about eight people and that we were interested in how they formed their first impressions and what these were. Subjects read the stimulus persons' names, were told what stimulus persons' respective majors were, and which attribute categories would be used to describe which stimulus persons. Finally, subjects were instructed to read the descriptive information carefully, as they would be asked to answer questions about it later. After these instructions, the stimulus information was presented.

The stimulus information was presented blocked by stimulus person. In each block, the stimulus person's name was shown followed by four sentences, each containing one descriptive attribute[2]. In addition, in the intergroup conditions, each stimulus person's major was presented in parentheses after their name so that subjects would make no confusions regarding a stimulus person's major. In the intragroup conditions, this repeated presentation of the stimulus person's major together with the other descriptive information was not adopted, as all stimulus persons had the same major. Indeed, doing this would have appeared rather strange and redundant, and could have led to suspicion on the part of the subjects. In order to avoid unwanted gender effects, the gender of the stimulus persons was always the same as that of the subject.

The stimulus person blocks were presented one by one on the computer screen for 15 seconds each, in one of two fixed orders. The order of the descriptive sentences within each person was fixed over the various conditions. The presentation of the stimulus person blocks was alternated by set (set A, set B, set A, etc.). In the first presentation order, a set A stimulus person was presented first (followed by a set B stimulus person, etc.). In the second presentation order, a set B stimulus person was presented first (followed by a set A stimulus person, etc.).

Subsequent to the presentation of the stimulus information, subjects were given a free recall task in which they were asked to reproduce as much of the presented information as they could, in the order in which it came to them, by typing the recalled information into the computer. After completing the recall task, subjects were asked to indicate which groups they had read about: law students (1), psychology students (2) or both (3). This question was used to check both the group membership and context manipulations. Finally, subjects were again asked to indicate their gender and major to check if their responses were consistent with those given at the onset of the experiment. After completing the final questions, subjects were debriefed and paid.

[2]Though the stimulus information was blocked by person, we do not believe this constituted a problem. Unpublished data (Young, van Knippenberg, Ellemers, & de Vries, 1994) shows that when presentation format was manipulated to be either blocked by person, by attribute category or in randomly constructed blocks of four descriptive sentences, neither a main effect of nor interactions with the presentation format was found for information clustering.

RESULTS

Manipulation check

Subjects indicated which group(s) they had received information about, law students (1), psychology students (2) or both (3). Fifty subjects (89 per cent) correctly indicated that they had read about the group(s) of students about which they had indeed received information. A chi-square test, checking for the dependence of subjects' answers on the condition to which subjects had been assigned, revealed that overall, subjects indeed perceived the manipulations as they were intended ($\chi^2(1) = 31.5$, $p < 0.001$)[3].

Recall analyses

Clustering scores were computed using the Adjusted Ratio of Clustering (ARC) Index (Roenker *et al.*, 1971; cf. Ostrom *et al.*, 1993). This index is calculated by counting the number of times that an item from a category (in this case from either one attribute category or one person) is followed by an item from the same category, and subsequently correcting for the total amount of information recalled. When the consecutive recollection of items from the same category occurs more often than would be expected based on chance, we may conclude that that dimension is used to cognitively organize information. In terms of Table 1, person clustering would be the result of recall 'by row' while attribute clustering would be the result of recall 'by column'. ARC scores vary—in principle—between -1 and $+1$. A positive score indicates clustering along the scored dimension while a score of 0 suggests that no more clustering occurred along this dimension than would be predicted by chance. Negative clustering scores indicate that a specific kind of clustering is actually occurring less than would be predicted by chance. In the present study, four scores were computed for each subject: one for person clustering for set A and one for attribute clustering for set A; one for person clustering for set B and one for attribute clustering for set B.

As explained in the Method section, the clustering of ingroup information and the clustering of outgroup information were analysed separately. Preliminary analyses revealed neither main effects nor interactions for Subject's Major, Presentation Order or Stimulus Set. As a result, the final analyses were collapsed over these factors. Consequently, a 2 (Social Context: intragroup, intergroup) between subjects $\times$ 2 (Clustering Dimension: person, attribute) within-subjects ANOVA was conducted on the recall data.

The analysis of the clustering of ingroup information yielded a two-way interaction between social context and clustering dimension ($F(1,41) = 5.34$, $p < 0.03$; see Figure 1). Taking a closer look we see that, consistent with our hypotheses, subjects in the intragroup condition clustered ingroup information significantly more by person than subjects in the intergroup condition ($F(1,41) = 6.21$, $p < 0.02$). Furthermore, subjects

[3]The six subjects who did not correctly answer the manipulation check were not omitted from the analyses as doing so would have been in violation of the random assignment assumption. Moreover, an analysis without the six subjects did not reveal a data pattern different from that reported here.

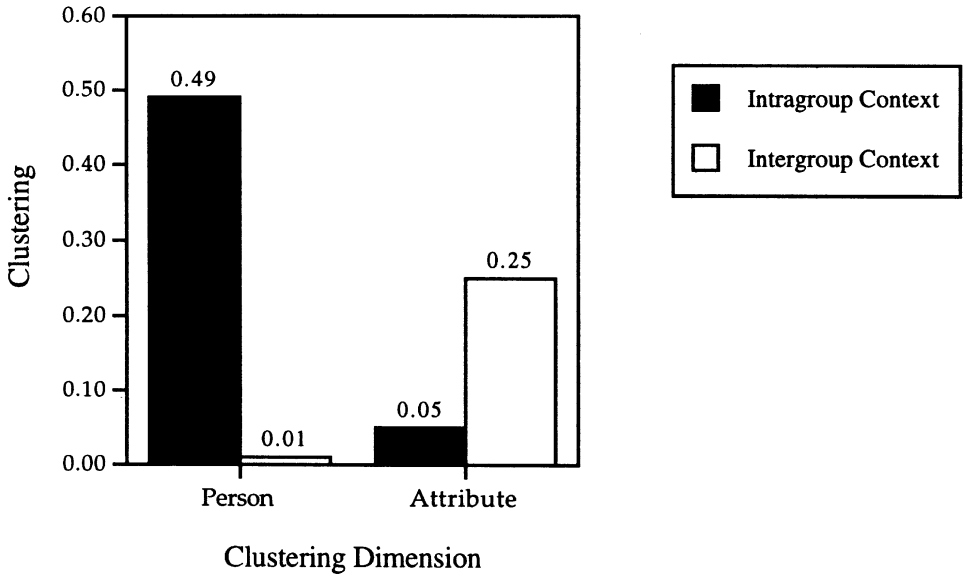

Figure 1. Person and attribute clustering of ingroup information as functions of social context

in the intragroup condition tended to cluster ingroup information more by person than by attribute ($F(1,41) = 3.50$, $p < 0.07$). Finally, there appears to be more attribute clustering in the intergroup context than in the intragroup context, however this simple effect fails to reach statistical significance ($F(1,41) = 0.98$, $p < 0.33$).

With regard to the clustering of outgroup information, no differential effects were obtained as a result of the context manipulation ($F(1,39) = 0.19$, $p < 0.67$; see Figure 2). Although a general preference for attribute clustering was expected, overall subjects showed no clustering dimension preference for outgroup information (person versus attribute clustering intragroup: $F(1,39) = 0.27$, $p < 0.61$; person versus attribute clustering intergroup: $F(1,39) = 0.00$, $p < 0.99$).

In sum, the clustering scores for ingroup information show that subjects appeared to systematically organize information about ingroup members. However, this organization, as predicted, was not stable over situations, as the fluctuations across comparative contexts attest. The clustering of outgroup information reveals a different picture. Here, subjects do not seem to organize the information systematically according to either of the analysed dimensions. Furthermore, this lack of clustering does not appear to depend on the social context.

Finally, the total number of recalled items was compared. No significant effects were observed.

DISCUSSION

The present study set out to test predictions concerning the individuated versus category-based organization of information about ingroup and outgroup members.

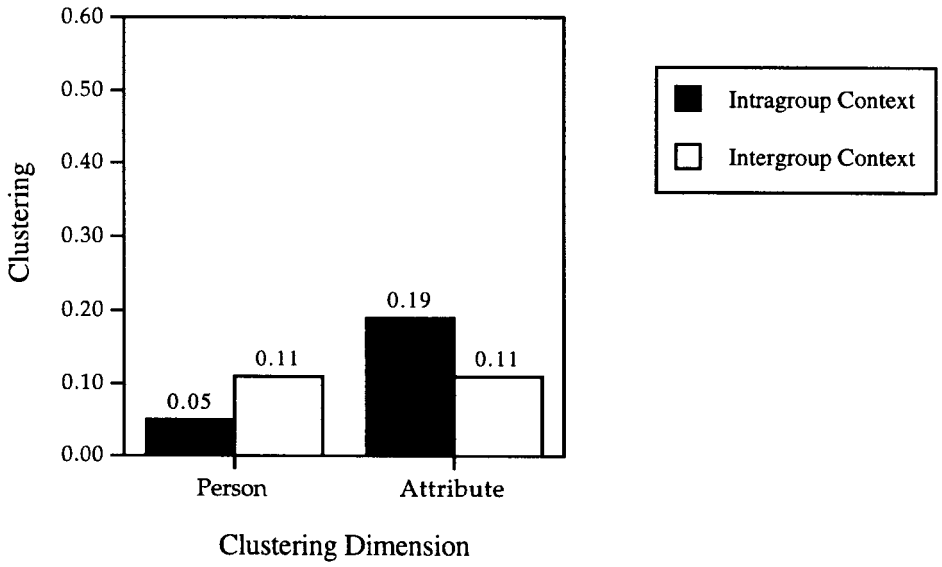

Figure 2. Person and attribute clustering of outgroup information as functions of social context

First, for the ingroup we expected that, in an intragroup context, clustering in free recall would be organized more around individual persons than in an intergroup context. The reverse pattern was expected for attribute clustering: we predicted more attribute clustering in an intergroup context than in an intragroup context. This pattern of results was indeed obtained although the predicted reversal for attribute clustering, while in the hypothesized direction, failed to reach significance. On the whole, these results lend support to self-categorization theory, which argues that in order for individuation to occur the social context must be conducive to interpersonal comparisons (namely, an intragroup context).

Second, assuming that confrontations with the outgroup always evoke (implicitly) a group level of comparison (categorization), it was predicted that outgroup information would be clustered more by attribute category than by person, regardless of explicit stimulus context. The data only partially supported this prediction. Contrary to our hypotheses, outgroup information was clustered by neither person nor attribute category. This lack of information organization, however, was not differentially affected by social context. In the remainder of the discussion, we will further explore these results and their theoretical implications.

In general the clustering patterns in the present study are consistent with the findings in other studies in which the effects of social context were examined with respect to other dependent variables (Doosje *et al.*, 1995; Haslam *et al.*, 1995; Lemmers & van Knippenberg, 1994; Vonk & van Knippenberg, 1995). On the whole, it would seem that the more a situation lends itself to interpersonal comparisons, the more likely one is to organize the descriptive information in an individuated manner and the less likely one is to perceive the group categorically. Conversely, whenever an outgroup is salient, intergroup comparisons become more salient for both the in- and

the outgroup, as reflected by decreased individuation and greater tendencies towards attribute clustering.

The present results demonstrate that social context can and does affect the way in which social information about ingroup members is stored in and retrieved from memory. The implication of this finding with regard to cognitive explanations of differential in-and outgroup perceptions, such as differential familiarity with in- and outgroups, and the availability of subtypes and exemplars, remains somewhat unclear. On the one hand, familiarity with a group or subtype availability cannot be the only decisive factor, as social context is unlikely to change a perceiver's cognitive repository. On the other hand, cognitive explanations as such seem not implausible (see also Linville *et al*., 1989). As it stands, however, a high level of familiarity with an availability of exemplars or subtypes may be a prerequisite, rather than the determinant, of adequate person clustering in memory.

In other words, having diverse subtypes of a particular group available or being relatively familiar with that group may not necessarily lead to increased individuation of that group's members. It may, however, result in a more differentiated image of the group which may actually provide perceivers with a basis upon which to structure incoming information. Indeed, our failure to find clustering of outgroup information may be the result of a lack of (familiarity with) outgroup subtypes and exemplars upon which any structure or organization of descriptive information about newly encountered members may otherwise be based. On the other hand, perceivers may have a large number of ingroup subtypes and exemplars stored, with which they are relatively familiar. This extensive repository may make a general structuring of the information possible, though the form this structure takes on may be determined by other (e.g. external and social) factors. In other words, while the availability of and familiarity with (ingroup) subtypes and/or exemplars may make general information clustering possible, the form in which the information is clustered (by person or by attribute category) may be determined by other factors such as social context.

With regard to the lack of outgroup information clustering, it is also conceivable that subjects simply lacked either ability or incentive to do so, rendering them unable or unwilling to cluster the outgroup information along experimental dimensions. Subsequently, subjects may have either not organized outgroup information at all or they may have indeed clustered the information, but along dimensions of their own making such as in reference to themselves, their friends or according to preference for the information (Bower & Gilligan, 1979; Klein & Kihlstrom, 1986; Klein & Loftus, 1988; Sedikides, Devine, & Fuhrman, 1991).

Overall, the results of the present study indicate differential organization of ingroup and outgroup information. Though the individuation of ingroup members is possible, it was only observed under circumstances conducive to interpersonal comparisons. Furthermore, while outgroup information is clearly not organized in the same way as ingroup information, our results indicate that outgroup information may not always be organized by attribute category either (cf. Ostrom *et al*., 1993). Indeed, outgroup information may either not be organized or may be organized along dimensions we have yet to discover.

In conclusion, consistent with self-categorization theory and the findings of various studies, the present research shows that the perception of information about group members is flexible, and dependent not only on cognitive factors but also on

the salient comparative context (cf. Turner *et al*., 1994; van Knippenberg *et al*., 1994). Thus, the proposal that the existence of differential processing of in- and outgroup information, as merely a function of differential familiarity or the availability of subtypes and exemplars, seems difficult to maintain.

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